

THURSDAY, MAY 23, 1878

## UNIVERSITY EXTENSION

LAST week two remarkable steps were taken affecting the prospects of universities in this country, each being a new departure from which it will be difficult to recede. On Tuesday the University of London revised its constitution so far as the convocation of graduates could do it, and the changes which were adopted unanimously, or by considerable majorities, would go some way to remove many of the evils connected with that great centre of examination. On Wednesday, the Yorkshire College, Leeds, supported by numerous representatives from the other large towns of the north, waited on the Lord President of the Council to entreat Her Majesty "*if* she is pleased to create a new university, not to give a charter to the Governors of Owens College, Manchester, but to a new Corporation, with powers to incorporate Owens College and such other institutions as may now or hereafter be able to fulfil the conditions of incorporation laid down in the charter"—and also "not to connect the new university by name with any locality." Both of these movements are due to the initiative of Owens College, and if the former should result, as there seems reason to hope, in real improvements in the University of London, the people of Manchester will have done something for sounder views on education and the reform of that system of examination apart from teaching, in which Mr. Lowe recognises the essential excellence of a university.

The Manchester proposal was that Government should grant a university charter to Manchester, which has now 500 regular day students and 800 evening students, and that that charter should entitle it to confer degrees. It was objected, on the one hand, that such a precedent might lead to an indefinite multiplication of competing universities, and a consequent degradation of degrees, and on the other, that the interests of teaching institutions in the neighbourhood, such as the Yorkshire College at Leeds, might be prejudiced by the prestige conferred upon Owens College. With the view of meeting these objections, the authorities of Manchester made two suggestions. They proposed that the examiners for their degrees should be half of them professors in the university, intimately acquainted with the teaching actually given, and half of them outsiders, practically commissioned to guarantee that the degree should not be conferred on any lower qualification than that usually required in other universities. They proposed also that the new university should be empowered to confederate with it other institutions as they arose, where adequate qualifying instruction could be permanently given, and that these institutions should then be admitted to a full proportionate representation. To guard against the danger which might have been real enough, that Owens College would decline to use this power, except upon really unpractical conditions, they proposed that the Privy Council, or other educational authority of the Government, should have the right to revise their acceptance or rejection of new institutions claiming federation. Their scheme started in this way from the basis of an actual and realised success—it proposed a charter to a body which seems

generally admitted to have established for itself a real university position and character; it provided guarantees against the degradation of degrees, which would certainly have been repeated in the case of any new claimants to a similar position, and it arranged that institutions like Leeds, with no reasonable ground for expecting, for many years at least, to obtain an independent university position, might fairly anticipate confederation with Manchester, if they so desired, at an early date. The confederation part of the scheme was thus directed to guard the interests of Leeds and of other towns which might soon be in a similar position, but the Manchester people did not offer at once and without further inquiry to admit Leeds or any other college.

The Leeds memorial, on the other hand, reads as if it had been carefully drawn to gather together all possible objections to the Manchester scheme. The object of its promoters may not be, but the effect of its promotion is likely to be, mere delay. The words employed, "If Her Majesty is pleased to create a new university," are calculated to unite in support not only those who think Her Majesty ought to be advised to do so, but any number of persons who think just the opposite. It was supported by Nottingham, which expressly stated that she saw no need for anything further than an affiliation, such as she supposes she has, with the University of Cambridge, and by Dr. Acland, whose speech was entirely directed to prove that no new northern university was wanted or was likely to be useful. The deputation in fact, was for opposition to Manchester, not for the promotion of a rival scheme of a new northern university in which Manchester should only be "*prima inter pares*." The memorialists asked for nothing. They asked that "*if*" the Government were disposed to do anything, they should *not* give a charter to Manchester either in fact or by name. The positive suggestions they put forward alternatively were of the vaguest and most shadowy kind. In place of Manchester, which exists, and has submitted its claims to the consideration of the government and of the country, they suggested that the government should give a charter to "a new corporation, with powers to incorporate Manchester and such other institutions as may now or hereafter be able to fulfil the conditions of incorporation laid down in the charter." No doubt the Government could create a university by giving a charter to a certain number of eminent persons representing localities in the north of England. What, then, would be the basis of the new university? It would consist—in the conditions of incorporation laid down in the charter! "The new university," says Lord Frederick Cavendish, "is to be closely connected with the colleges of the north of England, and adapted to the circumstances of the great industrial community there." What are the colleges of the north of England? Liverpool may possibly have a college some day. Birmingham certainly will. Newcastle, being connected with Durham, makes no claim. Sheffield and Nottingham have buildings in which the work of the Cambridge extension scheme will be regularly carried on. Outside Manchester Leeds alone exists so as to have even the shadow of a claim to a more independent recognition than every one of them possesses through the University of London at the present moment.

If Leeds had wanted to be incorporated on an equal footing with Manchester from the first; if she had been conscious that her present position made that claim unreasonable; if she had utterly disbelieved the Manchester people and their promises to listen to her as soon as she liked, and been convinced that her appeal against them to the Privy Council would be in vain, she would have acted much as she has done in getting up this deputation. The promoters of a real rival scheme would have named the colleges which should at once have been confederated and constituted the new university. It was to use a weapon of war to entreat the Government "if they think of chartering a new university," to sit down and evolve a scheme of a "new corporation," and to sketch its fundamental principles in "the conditions of incorporation laid down in the charter."

It seems tolerably plain that the Owens College people in their anxious attempts to be reasonable, to safeguard every interest, and to take account of every susceptibility have gone too far. They have offered terms to Leeds and all similar institutions of the present and future, which Lord Frederick Cavendish, the President of the Yorkshire College, declares "fair and equitable," but which seem only to have aggravated Leeds and to have weakened their own case as against the University of London. Now that that body appears at least to think of returning to the principle of affiliated colleges, she may perhaps soon offer a better centre of affiliation than Manchester or any new college in the north. It has been her deliberate policy for the last twenty years to exercise no control over what used to be called affiliated colleges, which she does not exercise over private tutors and private students. That policy was logical, and it will be more than curious to see how the senate, if they proceed to move in the lines indicated to them in Convocation, will attempt to retrace their steps. Convocation proposes that "the list of such colleges should be revised from time to time," and that the right of "excluding from or admitting to such list" should again be exercised. But it does not say how an affiliated college in the list is to hold any better position in the University than a private "crammer" who stands upon his own capacity for successfully preparing candidates for degrees. It suggests that the authorities of such colleges be entitled to communicate with the Senate from time to time about the examinations. Such communications could not fail to be interesting, but it is difficult to see how they can be given particular effect to, so long as it is the fundamental principle of the University that the non-collegiate should be examined on the same footing as the collegiate student. It proposes that the examiners should form a board for mutual consultation with some authority, and nothing could be better. It suggests that independent research should be recognised in connection with the higher degrees, and the suggestion appears eminently reasonable and practicable. It recommends the foundation of University Chairs for the cultivation of such branches of study as can be more conveniently or more efficiently taught by a central body. It is not very easy to realise the kind of University Chairs suited to a central university with no students directly connected with it and no class rooms. Possibly the occupants of the Chair would have to give isolated courses of lectures, open, perhaps, to the general

public, or to students of affiliated colleges, such as are now given at the Royal Institution. Certainly, eminent men could be found to do as much in the way of teaching in connection with the University of London as some of the distinguished occupants of the professorial Chairs of Oxford and Cambridge.

Convocation desires to move towards the rehabilitation of the affiliated colleges which were practically cast adrift twenty years ago, and it will be most interesting to see whether they can be rehabilitated consistently with the fundamental principle that the examinations of the university are to be perfectly open to all students who pay the examination fee. We venture to hazard the prediction that they cannot, and that though the affiliated colleges may be flattered with exceptional courtesies, affiliation will never mean anything very serious so long as the unattached student is not given up. Neither Manchester nor probably the airy confederation sketched out in the supposed interest of Leeds, find any room for the non-collegiate student. The promoters of both schemes will watch with the keenest interest the action of the London Senate in view of the resolutions of Convocation. But there is no such prospect of radical changes in the attitude of the University that either need be postponed.

Owens College would probably have been in a better position to-day if she had never gone out of her way to conciliate Leeds. She has only been wasting an energy that might have been better spent in combating the "Dutch auction" theory of degrees which Lord Ripon brought out with great emphasis at the deputation. The degradation of degrees would be a serious evil, for ordinary degrees are as low at present at Oxford and Cambridge and elsewhere, as any reasonable being can wish. But the multiplication of universities, so far from being an evil, is an unmixed good, and degradation and multiplication are by no means inseparable, though they have frequently been combined. German degrees were at one time in a disgraceful state; American degrees are in a bad way now; Scotch degrees lost caste when St. Andrews, which had no real medical school, sold licences to treat Her Majesty's subjects medically after an easy examination. There is one simple remedy. Let the universities give their degrees without fee or reward, and let these degrees cease to admit directly to any profession. The temptation has always been a pecuniary one. A Dutch auction is only possible in a world where people with brains and no money want to get money out of the pockets of people with no brains. Even without so radical a remedy, the Dutch auctions have been stopped in Germany and in Scotland, and to a large extent in America. They need never begin in Manchester. Let it be arranged that no new degree-granting university shall derive one halfpenny of profit from its degrees, and the whole difficulty vanishes. If there were no fear of the degradation of degrees, it would be as much for the benefit of the people of England that Manchester and Leeds and Birmingham and Liverpool should become University seats in due season, after they have fairly won their title by their own exertions, as Manchester has already done, as that everybody should learn to read and write and count. We cannot understand the

real friends of education, even in Yorkshire, spending as much energy to provide the Government with a reason for doing nothing as might itself have built and endowed a college.

### PHYSICAL SCIENCE FOR ARTISTS<sup>1</sup>

#### III.

LET me begin my third paper by an attempt to graphically illustrate the conclusions to which I drew attention at the end of my second. These conclusions were as follows :—(1) Very complex molecules when in vibration give us light that we call white, which light, when split up by a prism, gives us a spectrum consisting of

Red  
Orange  
Yellow  
Green  
Blue  
Indigo  
Violet,

going from one end to the other. We will represent this by open letters (the initials of the various colours) to show that this is a case of the giving out of light.

V I B C Y O R

We next come to the second conclusion. (2) Very simple molecules give us coloured light. When this coloured light is analysed by the prism we find associated with the sensation of colour the fact that in this case the light is not continuous; we do not get a complete spectrum represented by

V I B C Y O R

but when we deal with the molecules of one chemical element we may get only

Y

in the case of another chemical element only

R

in another

V

R

and so on, the letters representing that light is only given out in those parts of the spectrum represented by them, and not generally.

This we may also indicate by using black letters for the regions in which light is not given out, and white letters for those where light is emitted, thus

V I B G Y O R  
V I B G Y O R  
V I B G Y O R

We get bars of light here and there (the various mixtures of which produce different colours), instead of a *complete series* of bright bars (the mixture of which produces what we call white light).

The decomposition and recombination of white light to which I have referred is really one of the most beautiful and at the same time most simple experiments in the whole range of optical science. The recombination has

<sup>1</sup> Continued from p. 61.

lately been demonstrated by an elegant toy in the shape of a top, on which, while rotating with considerable rapidity, a circular disc of cardboard containing the different colours in their proper proportions painted in sectors

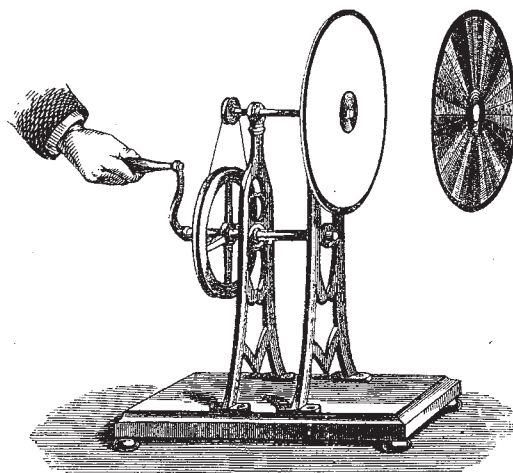


FIG. 1.—Rotating coloured disc experiment.

is placed. A lecture-room experiment of the same form is represented in the accompanying woodcut. The various colours shown on the disc at rest to the right form white light when the disc is rapidly rotated by the handle shown in the figure.

Two common lustres, or still better, two prisms (Fig. 2), enable the recombination to be well seen. First arrange one prism as on the right in the accompanying diagram (Fig. 3). If the eye be placed where the second prism is to the left, to receive the light passing through the first prism, all the colours will be seen, but if the eye

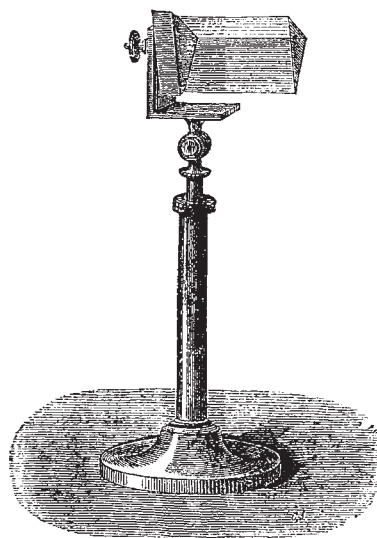


FIG. 2.—Prism mounted on stand.

is replaced by a second prism as shown, the light on emerging from the second prism will be found to be reconstituted, the colours will have again commingled, to form white light. The prism, with its refracting edge